

consisting of ammonia, hydrazine, amines, amino compounds, and their derivatives into contact with a surface of a substrate, on which an insulating film is exposed, to chemically activate the surface;

(b) subsequent to step (a), reforming the chemically activated surface as formed in step (a) by contacting the chemically activated surface with a gas or an aqueous solution containing an oxidizing agent selected from the group consisting of hydrogen peroxide, ozone, oxygen, nitric acid, sulfuric acid, and their derivatives to form an oxide film on the chemically activated surface;

(c) subsequent to step (b), forming an insulating film by CVD on the oxide film as formed in step (b).

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23. (Amended) A semiconductor device manufacturing method comprising the steps of:

(a) preparing a mixed solution containing ammonia ( $\text{NH}_3$ ), hydrogen peroxide ( $\text{H}_2\text{O}_2$ ), and water ( $\text{H}_2\text{O}$ );

(b) heating the mixed solution at a predetermined temperature for a predetermined time so that  $\text{NO}_2^-$  and  $\text{NO}_3^-$  are formed in the mixed solution in predetermined concentrations;

(c) contacting a surface of a silicon oxide film with the mixed solution after the heating; and

(d) subsequent to step (c) forming an insulating film by CVD on the surface as obtained in step (c).

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